



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,946	02/20/2002	Sharif M. Shahrier	I-2-211.2US	6198
24374	7590	01/04/2006	EXAMINER	
VOLPE AND KOENIG, P.C. DEPT. ICC UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			PHAN, MAN U	
			ART UNIT	PAPER NUMBER
			2665	

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/078,946

Applicant(s)

SHAHRIER ET AL.

Examiner

Man Phan

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,9,12 and 14 is/are rejected.
- 7) ☒ Claim(s) 3-8,10,11,13 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/21/03; 11/24/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The application of Shahrier et al. for a "Method and system for a low-overhead mobility management protocol in the Internet Protocol layer" filed 02/20/2002 has been examined. The preliminary amendment filed 2/9/2004 has been entered and made of record. Claim 1-15 are pending in the application.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Reference character (CN) for the Corresponding Node as described in the specification for Fig. 1. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2, 9, 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over La Porta et al. (US#6,496,505) in view of Inoue et al. (US#6,501,767).

With respect to claims 1 and 14, both La Porta et al. (US#6,496,505) and Inoue et al. (US#6,501,767) disclose a novel system for supporting mobile Internet communication according to the essential features of the claims. La Porta et al. discloses in Fig. 2 a block diagram illustrated the domain-based architecture for a handoff aware wireless access Internet infrastructure comprising a plurality of mobile nodes (BS5, BS6, BS7, BS8...); a plurality of access routers (root router 150), each having unique IP address and geographic access range in which the root router 150 communicates data to the BS5, BS6, BS7, BS8...; each BS (mobile node) associated with a home router 152 (implemented within the root router 150). La Porta further teaches a method for wireless access between a corresponding node and a mobile device over the Internet, in which packet delay and tunneling overhead are reduced when packets are forwarded from a home agent to a mobile device's foreign agent by substituting the packets' destination addresses at the home agent (using the IP address of the HA within the root router 150 as its current location), rather than encapsulating each packet with an additional source and destination address. In an embodiment of the invention, the foreign agent is co located with the mobile device. When a mobile device acquires a new foreign agent, the mobile device notifies the home agent as to the address corresponding to the foreign agent. Packets received at the home agent having the mobile device as a packet header destination address are not encapsulated with additional source and destination addresses. Rather, the packet header is parsed, the foreign agent address is substituted for the mobile device address, and the packet is forwarded to the foreign agent (using the IP address of the current location of the selected BS). The foreign agent,

upon receiving the packet, removes the foreign agent address and replaces the mobile device address as the packet header destination address. The packet is then forwarded to the mobile device (Col. 2, lines 19 plus and Col. 8; lines 19 plus).

However, La Porta does not expressly disclose the Mobile Node Location List associated with the root router. In the same field of endeavor, Inoue et al. discloses a mobile IP communication scheme for supporting a mobile computer moving over different address spaces. A packet relay device for relaying packets having an address of the mobile computer device as a destination or source is provided at a border between a private address space and a global address space, where the packet relay device has a packet receiving unit for receiving a packet in a first format using a global address which is transmitted by the mobile computer for a location registration from a visited site managed by a global address system, and checking a content of the packet, and a packet transfer unit for transferring the packet in a second format using a private address, to a correspondent computer in a home network of the mobile computer managed by a private address system, according to the content of the packet (See Fig. 2; Col. 4, line 29 plus). Inoue further teaches in Fig. 9 a block diagram illustrated an exemplary configuration of a home agent 5 in the network system, in which a mobile computer current location table 51 (Node Location Table identifying each mobile node) is provided, and utilized by a packet encapsulation processing unit 52 in carrying out the encapsulation of packets to be transmitted from a data input/output unit 53 to the connected network. When a packet destined to the home address of the mobile computer is captured, the mobile computer current location table 51 is checked to obtain the current address, and the packet is encapsulated by the Mobile IP with respect to the current address. If the current address is a private one, the reply packet is

encrypted and directly outputted from the data input/output unit 53. If the current address is a global one, the reply packet is encrypted with respect to the border gateway that is registered in the border gateway address register 54 and outputted to that border gateway (Col. 12; lines 29 plus).

Regarding claims 2, 9 and 12, they are method claims corresponding to the system claims above. Therefore, claims 2, 9 and 12 are analyzed and rejected as previously discussed with respect to the claims above.

One skilled in the art would have recognized the need for effectively and efficiently combining mobility management with optimal routing for use in a mobile IP communication, and would have applied Inoue's novel use of the home agent's node location table into La Porta's network system for supporting mobile IP communication. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Inoue's mobile IP communication scheme for supporting mobile computer move over different address spaces into La Porta's packet tunneling optimization to wireless devices accessing packet based wired networks with the motivation being to provide a method and system for a low-overhead mobility management protocol in the IP layer.

Allowable Subject Matter

5. Claims 3-8, 10-11 and 13, 15 are objected to as being dependent upon the rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

6. The following is an examiner's statement of reasons for the indication of allowable subject matter: The closest prior art of record fails to disclose or suggest wherein each router is an Access Router (AR) having a unique Internet Protocol (IP) address and a geographic access range in which the ARs communicate data to the MNs; each MN is associated with a home AR; each AR has as its Mobile Node Location List an associated Node Location Table (NLT) identifying each MN for which the AR is the home AR and the IP address of a current location of each such MN, as recited in claim 3; wherein each Router is a Network Address Translation router (NAT) further comprising a plurality of networks, each having a different one of the NATs with a unique global address, at least one Host associated with the network's NAT, and at least one Mobile Node (MN), each Host having a service area in which it can communicate data to the MNs; each MN having a home Host in a home network which defines a default local address which is paired with the global address of the home network's NAT to define a default binding of the MN; the NAT of each network having as its Mobile Node Location List an associated Mobile-Home Database (MHD), as recited in claim 6; wherein the home AR maintains a Node Location Table (NLT) identifying each MN for which the AR is the home AR and the IP address of a current location of each such MN, the current location IP address being the third IP address which equal to the second IP address if the MN is in communication with the Internet via its home AR, and the home AR creates the data portion of the second datagram by referencing the Node Location Table (NLT), as recited in claim 10; wherein the MHD identifies 24 bit local and global addresses and a location field such that each MN, which has as its home Host, a Host associated with the NAT, is identified with a 24 bit local address of a current

association of the MN with a Host associated with the NAT, a null global address, and a home flag in the location field, or a binding defined by a 24 bit local address of an association of the MN with a Host not associated with the NAT and a 24 bit global address of the NAT associated with that Host and an away flag in the location field; and each MN, which is currently associated with a Host associated with the NAT, but has a home Host which is not associated with the NAT, is identified with a 24 bit local address of the current Host association of the MN, a null global address, and a home flag in the location field, as specifically recited in claims 13, 15.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Johansson et al. (US#2002/0080752) is cited to show the route optimization technique for mobile IP.

The Magret (US#6,856,624) is cited to show the temporary unique private address.

The Kinoshita et al. (US#2001/0036184) is cited to show the method for packet communication and computer program stored on computer readable medium.

The Srisuresh et al. (US#6,058,431) is cited to show the system and method for network address translation as an external service in the access server of a service provider.

The Comstock (US#6,452,920) is cited to show the mobile terminating L2TP using mobile IP data.

The Chang et al. (US#6,487,406) is cited to show the PCS-to-mobile IP internetworking.

The Vilander et al. (US#6,618,592) is cited to show the mobile Internet access.

The Leung (US#6,621,810) is cited to show the mobile IP intra-agent mobility.

The Lee et al. (US#6,535,493) is cited to show the mobile Internet communication

The Chuprun et al. (US#6,115,580) is cited to show the communications network having adaptive network link optimization using wireless terrain awareness and method for use therein.

The Inoue et al. (US#6,240,514) is cited to show the packet processing device and mobile computer with reduced packet processing overhead.

The Inoue et al. (US#6,587,882) is cited to show the mobile IP communication scheme using visited site or nearby network as temporal home network.

The Inoue et al. (US#6,515,974) is cited to show the mobile computer communication scheme supporting moving among networks of different address systems.

The Inoue et al. (US#6,510,153) is cited to show the mobile IP communication scheme using dynamic address allocation protocol.

The Rai et al. (US#6,577,643) is cited to show the message and communication system in a network.

The La Porta et al. (US#6,434,134) is cited to show the dynamic address assignment for wireless devices accessing packet-based wired networks.

Art Unit: 2665

9. 11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (571) 272-3149. The examiner can normally be reached on Mon - Fri from 6:00 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at toll free 1-866-217-9197.

Mphan

**MAN U. PHAN
PRIMARY EXAMINER**

12/27/2005.

